

IN THE DISTRICT COURT OF THE FOURTH JUDICIAL DISTRICT  
STATE OF UTAH, IN AND FOR UTAH COUNTY.

-----ooOoo-----

PROVO RESERVOIR COMPANY, )  
Plaintiff. )

No. 2 8 8 8 Civil.

VS. (

PROVO CITY, ET AL. )  
Defendants. )

COMMISSIONERS SPECIAL REPORT 1 9 2 1 .

ON CONSTRUCTION OF GATES AND DAMS

NEAR OLMSTEAD.

Upon the petition of the Commissioner, T.F. Wentz, the Court  
at a hearing on the 26th day of September, 1921, made the follow-  
ing Order:-

"Upon the motion of W.W. Ray, attorney for the Provo Bench Irrigation Company, and it appearing that said petition does not set out specifically the amount of improvements or what kind of improvements desired, nor the plans of such improvements, and the parties desire, before a hearing is had upon this matter, to know the nature of the improvements, and the plans thereof. It is now ordered that said petitioner, T.F. Wentz, be, and he is hereby directed to file with the files in this case plans and specifications, specifically setting out the nature of the improvements which he desires to place, and in making such plans and specifications he is directed to secure the assistance of Markham Cheever and the City Engineer of Provo City, \*\*\*\*"

LETTER OF TRANSMITTAL.

Provo City, Utah. Nov. 8, 1921.

Hon. Elias Hansen,

Judge, Fourth Judicial District Court.

Sir:-

As provided in the Court's order of September 26th, 1921, I submit herewith plans and specifications for Diversion Dams, and Control Gates, on the Provo River, near Olmstead.

Very Respectfully

*T. F. Wentz*  
Commissioner.

# C.S.R. 1921. (2)

## LIST OF PLATES .

- PLATE 1, PROVO RIVER AND WATERWAYS IN VICINITY OF OLMSTEAD.  
 PLATE 2A, GATES LEADING FROM OLMSTEAD TAILRACE TO PROVO RIVER.  
 PLATE 3, CITY CREEK DAM PROVO RIVER.  
 PLATE 4, TIMPANOGUS DAM PROVO RIVER.  
 PLATE 5, FLASH-BOARD SUPPORT.

## LIST OF ELEVATIONS.

Utah Power &-Light Company, Olmstead Datum, Observed Sept.16, 1921.

A. Sill Provo Bench Canal headgate . . . . .	148.2
b. Provo Bench Canal Spillway, South end. . . . .	149.65
c. " " " " , Center . . . . .	149.72
d. " " " " , North end . . . . .	149.90
e. Top Ice Cutter Provo Bench Canal headgate . . . . .	151.68
f. Highwater mark " " " " . . . . .	151.92
g. Sill Center gate of West Union Gates . . . . .	148.26
h. Channel Bed twenty feet below West Union Gates . . . . .	147.61
i. Water surface Tailrace . . . . .	150.50
j. Sill Tailrace Gates . . . . .	146.91
k. B.M. on bolt head, N.E. end tailrace gates . . . . .	154.99
l. High-water mark below tailrace gates . . . . .	152.21
m. Sill Emergency Dam . . . . .	151.77
n. Sill Timpanogus Headgate . . . . .	154.17
o. " " Dam . . . . .	154.17
p. Timpanogus canal bed twenty feet below headgate . . . . .	155.25
q. Water surface Timpanogus forebay . . . . .	157.57
r. " " " canal . . . . .	156.35
s. Bed of Tailrace, 300 feet below plant . . . . .	145.02

## EXPLANATION OF PLATES AND ESTIMATE OF COST OF CONSTRUCTION.

## PLATE 1.

Plate 1, is map pf PROVO RIVER AND WATERWAYS IN VICINITY OF OLMSTEAD, made by actual survey of September 21-22, 1921.

## PLATE 2A.

Plate 2A, is plan of GATES LEADING FROM OLMSTEAD TAILRACE TO PROVO RIVER, with a 4' x 3' vertical lift gate, sill elevation 148.2, leading to City Creek; and a 12' x 7' radial gate, sill elevation 145.2, and a 8' x 4' radial gate, sill elevation 148.2, leading to a confluence with the waters of the Provo Bench Canal spillway and to Provo River below the City Creek Dam.

## Estimate:

Concrete, 75 cu.yds., at \$20. . . . .	\$1500.
Reinforcing material, 100 lbs., at 6¢, . . . . .	6.
Steel for platforms, 900lbs., at 6¢ . . . . .	54.
Earth embankment, 100 cu.yds., at \$1. . . . .	100.
4' x 3' Gate and lift . . . . .	130.
12' x 7' Radial Gate and lift . . . . .	600.
8' x 4' Radial Gate and Lift. . . . .	160.
Unwatering, backfill, and misscelaneous . . . . .	500.

Total . . . . . \$3050.

## PLATE 3.

Plate 3, is plan of CITY CREEK DAM PROVO RIVER, and two 4' x 3' gates leading to City Creek.

## Estimate:-

Concrete, 110 cu. yds. at \$20. . . . .	\$2200.
Rubble Concrete, 100 cu. yds., at \$12.50 . . . . .	1250.
Two 4' x 3' gates and lifts, at \$130. . . . .	260.
Reinforcing materials, 330 lbs., at 6 ¢ . . . . .	20.
Two trash racks, 2550 lbs. at 10¢ . . . . .	255.
24 Supports at \$12.50, . . . . .	300.
Unwatering, backfill, and misscelaneous . . . . .	750.

Total . . . . . \$5035.

## PLATE 4.

Plate 4, is plan of TIMPANOGUS DAM, showing the addition of headwall and flash-board supports.

Estimate:-

Concrete, 12 cu. yds. at \$20. . . . .	\$240.
15 Supports at \$12.50 . . . . .	187.50
330 lbs. Steel at 6¢ . . . . .	20.
Special angle . . . . .	2.50
Setting and anchoring angle iron backstop . . . . .	125.
Repair of face of present dam . . . . .	50.
Unwatering and miscellaneous . . . . .	150.
Total . . . . .	<u>\$775.</u>

## PLATE 5.

Plate 5, is plan of FLASH-BOARD SUPPORT, for instalation on the City Creek Dam and also on the Timpanogus Dam.

## S P E C I F I C A T I O N S .

## CONCRETE:

Composition:- Concrete shall be composed of cement, sand and broken rock or clean gravel, well mixed and brought to proper consistancy by the addition of water. Ordinarily, one part by volume, measured loose, of cement shall be used with two and one-half parts of sand and five parts of broken rock or gravel. These proportions may be modified by the Commissioner as the work or nature of the materials used may render it desirable.

Cement:- All cement used shall be a good grade of Portland cement and of a standard brand and of such quality as approved by the Commissioner.

Sand:- Sand for concrete may be obtained from natural deposits. The sand particles shall be hard, dense, durable, non-organic rock fragments, such as will pass a one-fourth inch ring. The sand must be free from organic matter and must not contain more than eight per cent of clayey materials or other objectionable non-organic matter. The sand must be so graded that when dry and well shaken its voids will not exceed thirty-five per cent.

Broken Rock or Gravel:- The broken rock or gravel for concrete must be hard, dense, durable, non-organic rock fragments or pebbles, that will pass through a two and one-half inch ring, and that will be rejected by a one-quarter inch ring.

Water:- The water used in mixing concrete must be reasonably clean and free from objectionable quantities of organic matter or other detrimental impurities.

**Mixing:-** The cement, sand and broken rock or gravel shall be so mixed and the quantities of water added shall be such as to produce a homogeneous mass of uniform consistancy. Machine mixing will be required, and the machine and its operation shall be subject to the approval of the Commissioner.

**Placing:-** Concrete shall be placed in the works before the cement takes its initial set. No concrete shall be placed in water except by permission of the Commissioner and the method of depositing the same shall be subject to his approval. The concrete shall be "Wet" and so soft that it will flow when agitated, but not so wet as to produce a separation of the materials in transferring to the work. The wet concrete shall be stirred with suitable tools until it completely fills the forms, closes snugly against all surfaces and is in perfect and complete contact with all steel used. Where smooth surfaces are required, a suitable tool shall be worked next to the form until the coarser material is forced back and a mortar layer is brought next to the form. No concrete shall be placed except in the presence of a duly authorized inspector or the Commissioner.

**Finishing:-** All exposed surfaces must be smooth, free from projections and thoroughly filled with mortar. Immediately upon the removal of forms all voids shall be neatly filled with cement mortar, irregularities in exposed surfaces shall be removed and minor imperfections of finish shall be smoothed to the satisfaction of the Commissioner. Exposed surfaces of concrete not finished against forms, such as horizontal or sloping surfaces, shall be brought to a uniform surface and worked with suitable tools to a smooth mortar finish. All exposed salient angles shall be rounded or beveled by the use of molding strips or suitable moulding or finishing tools.

**Structural Steel:-** Gate frames, anchor bolts, flash-board support anchors, guides, and gate seats shall be placed in the concrete wherever shown on the drawings, or prescribed by the Commissioner.

**Rubble Concrete:-** Rubble concrete may be used in the substructures, to the extent and only to such heights as prescribed by the Commissioner. And shall consist of concrete as before specified and only the quantity of stone added that can be imbedded and completely covered in the mass of concrete. The quantity of stone added shall not exceed twenty per cent by volume.

#### ORDER OF WORK:

All work shall be executed in a thorough and work-man like manner, and shall be commenced and carried on in such order of procedure and at such times, as may be directed by the Commissioner.

#### CHANGE OF PLANS:

The Commissioner, with the approval of the Chief Engineer of the Utah Power & Light Company or the City Engineer of Provo City, may change the plans in minor details to suit conditions as arise or to match standard equipment selected.

#### GENERAL CLAUSES:

In all the operations connected with the work, all State Laws and County Ordinances, controlling or limiting in any way the actions of those engaged in the work, or affecting the method of doing work or materials, applied to it, must be respected and strictly complied with.